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Abstract 150-250 words:

Introduction: The evolution of venous access via peripheral cannulation, particularly in relation to the risks and the benefits of this procedure is reported widely in the literature. Yet, there is limited research specific to the patient experience of undergoing venous access.

Aim: The intent of this qualitative study was to understand patients' experience of venous access, with the aim of bringing forth their voices about the experiences of repeated venous access/cannulation attempts.

Methodology: This qualitative study used a hermeneutic phenomenological approach to explore the experiences of 15 participants in 2 rural oncology units in New South Wales. The participants had experienced repeated peripheral cannulation in order to receive chemotherapy. Study participants were asked to describe what it was like for them to be repeatedly cannulated. Data were collected via audiotaped individual interviews, the participants' stories were transcribed and analysed thematically.

Outcomes: Themes emerged from the participants' stories that provided insights into their perceptions of the experience of being cannulated and the decision-making processes regarding how and where the procedure occurred. The findings suggest that a holistic approach to care was often missing causing the participants to feel vulnerable. Gaining insight into their experiences led to a greater understanding of the impact of this procedure on patients and the need to improve care through encouraging more collaborative decision-making processes between clinicians and patients.

Conclusions: The implications for policy and practice focused on improving patient outcomes via procedural governance and education, with the intent of translating the findings from this research into evidence-based practice. It is anticipated that by developing a better understanding of the experience practice will be enhanced.

Keywords 4-6: venous access, cannulation, patient-centred, paternalism, vulnerability, qualitative.

Text:

Introduction

As health care professionals, we learn to provide care based on knowledge and skills that must be mastered before competency is achieved. However, in applying knowledge to practice we must be mindful that the experience of the receiver of care should always inform our work. The aim of medical treatment, including nursing care, and the attitudes of all health professionals is to create a positive experience and outcomes for the patient. A patient's health issue can create a sense of vulnerability in regards to treatment options, leaving the patient with little choice as they perceive that some procedures just 'have to be done'^{1,2,3,4,5,6} Historically, before the advent of modern healthcare and the concept of patient-centredness, patients were often exposed to physical and/or emotional injury during the delivery of treatments – mainly as a result of lack of knowledge or skills on the part of the healthcare practitioner⁷. The first recorded attempt of venous access where an instrument was inserted into a vein was believed to be in 1492⁷. This was known as a vein-to-vein anastomosis. The first documented instrument known as a cannula, a small silver tube, was developed nearly 200 years later. Today this common procedure is still invasive, and while modern science has provided strategies to assist in mitigating risks, patients often experience several cannulation attempts before a suitable vein can be accessed to deliver treatment. Common invasive procedures, such as cannulation, may cause more distress than clinicians realise.

Cannulation hurts, yet it is a routine procedure required to deliver many types of intravenous fluids, medications and treatments. Thus the intent of this qualitative study was to understand patients' experience of venous access, with the aim of bringing forth their voices about the experiences of repeated venous access/cannulations.

Background

In recent times, with the advent of modern healthcare education and standards, combined with ethical and professional frameworks the risks to patients from inadequate practitioner knowledge or skills have been reduced, by mandating the competency of practitioners to perform and deliver treatments. As background to this study, it is important to note that over 60 per cent of patients presenting to an Australian hospital will require intravenous therapies commonly delivered via a peripheral cannula⁸. As with any invasive procedure there are risks, for example, The Centre for Disease Control (CDC), in 2002 reported a \$26 million increase in health care costs due to infection related to venous access⁹. This highlights the need for more appropriate assessment of venous requirements and planning of patient intravenous therapy. In Australia over 10 years ago, the 2003 National Strategy to address healthcare associated infections developed by the Australian Council for Safety and Quality in Health Care¹⁰ suggested blood stream infections may be costing up to \$686 million each year.

Significant advances have occurred regarding the processes of peripheral cannulation, with the literature replete with information about the procedure and risks, however there remains limited research into the patients' perspective on the experience¹¹. It is evident health-related risks associated with multiple cannulation attempts expose the patient to a break in their skin integrity¹². The skin is a protective barrier and its disruption potentiates the risk of opportunistic infections, especially in cases when patients' immune systems are already compromised. It is also interesting to note that in NSW there is currently no state-wide health policy specific to cannulation, although there are health services whom have adopted as best practice re-siting cannulae every 72 hours to reduce infection risk¹². While this may reduce the risk of infection, it subsequently intensifies the discomfort for the patient. In an earlier Australian study, Webster, Lloyd, Hopkins, Osborne and Yaxley (2007) examined hospital policy on cannula changes every 72 hours versus cannula change when a clinical need was evident concluding that routinely re-siting of cannulae was unnecessary and distressing for the patient.

Traditionally, clinicians have decided what is best for the patient^{5,3}. Earlier studies have identified that taking a paternalistic approach may reduce the patients' ability to engage in shared decision-making, as the healthcare team focus primarily on the disease state, rather than their preferences^{14,15}. For this reason, patients may not always communicate their concerns preferring to take a more passive role in decision-making^{16,17,18}. The reluctance to voice their needs has been attributed in the literature to past experiences and a reluctance to engage in decisions about their care¹⁹. This reluctance to speak up may impact on the treatment process and experiences of patients²⁰. This study seeks to explore the experience of undergoing peripheral cannulation from patients' perspectives.

Methodology

A qualitative methodology was chosen to explore this topic. Such a methodology guides the research through an interpretive perspective and reflects the aim of understanding the participants' experiences within the context of the phenomenon²¹. Phenomenological theorists, for example Husserl²³, argued that accounts of experience should not be influenced by what the experience should be like but rather by what it is actually like and the subjective factor of experience^{22,23,24,25}. Hermeneutic phenomenology allows for research into the fullness of living¹⁰, and any interruption to the fullness justifies a paradigm attentive to the philosophies underpinning both hermeneutics and phenomenology. Ethical approval to conduct this study was granted by both a Health Service and a University Human Research Ethics Committee.

Participant recruitment was conducted at two rural public hospitals within northern New South Wales. Eligible participants were those who had experienced venous cannulation, were over 18-years of age, could understand written and spoken English and did not have a cognitive impairment. Eligible participants who indicated a willingness to be interviewed were provided with an information sheet about the study and invited to sign a consent form. Data was gathered from fifteen participants using individual semi-structured interviews and these

were then analysed to allow themes to emerge. The intent was to encourage the participants to reflect on the experiences of the phenomenon.

A Risk Hazard Framework developed by Turner II et al (2003), was adopted as the theoretical framework for this study, it assisted in the understanding of the multiple factors that may influence participants' experiences. The literature highlighted patient experiences of healthcare procedures are often linked to feelings of vulnerability. Thus this framework assisted in understanding the risks of exposure to stress or hazards and how this creates a sense of vulnerability²⁸. This framework provides a lens through which to view the participants' experiences of venous access. Vulnerability underpins the lived experiences of many people in relation to meeting their healthcare needs²⁰.

Data analysis

The transcripts were analysed using two analytic procedures. After each participant's dialogue was carefully transcribed verbatim by the researcher and then rechecked by reading the transcript and listening to the audiotape recording again a qualitative computer software program, Leximancer, was used to organise the data²⁹. Once the software program had organised the transcribed data files a manual review of the data by the researchers occurred, which allowed participant experiences to be considered and grouped into preliminary themes. It is important to clarify that this was not an exercise in conducting a comparative study between two types of data analyses processes but rather an attempt to further ensure the trustworthiness of the emergent themes and deliver a valid representation of these participants' lived experiences. Thus by using both software based and manual analysis procedures to identify themes the rigour of the data analysis process was enhanced.

Findings

The lived experience of venous access is reflected in the four themes and three subthemes that emerged from the data, (Fig 1).

Figure 1: Themes

THEME	SUBTHEME
Theme 1: A necessary evil	Subtheme 1: Developing defences
Theme 2: Reflecting on a difficult journey	Subtheme 2: A trouble shared
Theme 3: Bad veins	Subtheme 3: The clinician knows best
Theme 4: Suggestions for improvement.	

Theme 1: A necessary evil

The first theme 'a necessary evil' came directly from a participant's comment and was an inherent theme in many of the participants' experiences.

It's frightening but you know it's a necessary evil (Debra).

Participants' indicated that the chemotherapy was not the concern, but the cannula was cause to worry. The participants described being well-informed on most occasions of the toxicities associated with a particular treatment drug and often related their individual journeys back to this experience. The participants were, however, unable to recall in detail how they were informed about the treatment delivery method and whether this aspect of their education was addressed. The participants indicated that the treatment education they received did not prepare them for how painful advancing a sharp pointed instrument through the skin on the back of the hand might be. The two quotes that follow are examples of the reality for most respondents and how they shared similar feelings about the experience of venous access.

I saw the bags, I looked at the needle, I thought what the hell's going on here. I was scared (Robert)].

When the nurse comes near me with a cannula needle, I freeze because of the pain (Debra).

Many of the participants indicated that they did not feel involved in the planning of treatment nor did they feel well prepared for the process of cannulation.

When I suggest where to place the cannula the majority will go 'no I don't need to do that it will be fine' (Glenda).

I said that's not in properly, he said yes it is, I know what I'm doing. Then he realised it wasn't, he didn't get any blood so obviously he didn't know and he was supposed to be an expert at doing that (Jack).

According to most of the participants, each encounter of cannulation heightened their anxiety and, even though they felt they were the authority on their own experience of venous access, their advice and concerns were not heeded. The majority of participants indicated that, for them, the pain occurred prior to the cannula being lodged in a vein. Thus, several of the participants described having thoughts of abandoning treatment because of their unpleasant experiences of venous access, however they did complete their treatment because they knew it was essential.

I could quite easily say that there were many occasions I felt I will go without the chemotherapy (Nicholas).

The participants described pain, suffering and feeling vulnerable, but they appeared to accept this as part of their treatment experience.

Developing defences

This subtheme, 'developing defences', continues to explore the experience of cannulation as part of the first theme 'necessary evil'. The following quotes suggest a number of participants took a stance to advocate for themselves because of their individual experiences.

I said just give me the phone, I'll ring a doctor who can perform cannulation (Sam).

I usually say three attempts and then you have to get someone else (Lyn).

The first time the nurse had two attempts, I said she should get someone else (Joy).

The journey for some changed given the impact of their distinct experiences during cannulation. Some participants said that, in the course of their treatments, there came a time when, for them, 'enough is enough'. Clearly, some of the participants decided to speak out because their experiences left them no choice but to advocate for themselves.

Theme 2: Reflecting on a difficult journey

Reflection on the events that surrounded cannulation formed an integral part of the participants' experiences and it provided an opportunity for them to discuss the effect of cannulation on their perceptions of their treatment and responses during that time. For some, such as Maggie, recollecting the experiences of cannulation was distressing.

Oh dear, I think reflecting on this ... [tears]. No, that it is awful (Maggie).

The sense of vulnerability experienced by a majority of the participants was expressed during the interviews, sometimes by tears and long pauses as they reflected on their experiences of having a life-threatening illness as well as undergoing unpleasant and, sometimes, painful treatment, of which repeated cannulations were a core part.

A trouble shared

It was clear that in order to cope with the unpleasant and sometimes painful procedure of cannulation, the participants' shared personal accounts with fellow patients. During the interviews, they reflected that these interactions allowed them to discuss their reaction to their own cannulation and their reaction to watching the cannulation of fellow patients and how distressed this made them feel.

Looking back I need to share this. It was not pleasant and as I said before there was another lady in the room who said she was feeling quite ill with seeing and hearing what was going on [multiple cannulation attempts] with me because it was protracted. I don't remember the number of attempts. I just remember the HUGE bag of refuse at the end of it because everything that was unpacked and this enormous bag full of the stuff that was to be thrown out. Just the amount ... I did not count the number of attempts ... there was a lot, probably way too many (Ann).

In an outpatient unit, it is common to be in close proximity to other patients and to see their treatment bay. Privacy, in this type of clinical environment, is not overlooked but is perhaps more difficult to manage.

Theme 3: Bad veins

It was interesting to note that all the participants used the term 'bad veins' or 'difficult veins', suggesting that this is what they had been told when clinicians found it difficult to cannulate them. Of the 15 participants, only two did not discuss the status of their veins as being 'bad'.

I won't tell anybody I have bad veins because they will have problems with them (Debra).

The fact is that I've got hard veins to cannulate (Lyn).

Aside from the participants stating they had 'bad' veins, many described being questioned about their hydration status with the clinicians often asking them, 'have you had enough to drink this morning?', prior to presenting for treatment. Initially they described being bewildered by this question. As they became more familiar with the procedure of cannulation, they understood that dehydration, as well as having 'bad veins' was often cited as reasons for failed attempts.

The nurse would say, 'haven't you been drinking enough fluid before coming in here'. Well I did and said alright I'm pumping another vein up for you (Jack).

It was unclear from the participants' comments whether they understood or accepted these reasons or saw them more as excuses by their clinician.

The clinician knows best

This subtheme is clearly linked to the participants belief they had 'bad veins' and their trust that clinicians were the experts in venous access.

When you're the average person who has come off the street you wouldn't know any better and you'd take their word as gospel and just cop it, and cop it, and cop it (Sam).

As a clinician and now as a patient it makes me realise when a person voices it stings, it really does sting (Jenny).

Jenny viewed the experience from the perspective of being a clinician as well as a patient. As a receiver of multiple cannulations, it had become quite confronting for this participant who also actually performed the procedure as part of her clinician's role. The participants described, what can only be interpreted as, paternalistic approaches from clinicians, which may have contributed to their feelings of vulnerability.

I'm gripping the bed you know because it hurts and he ended up having another four attempts before he did manage to get something. I wish I had of had some sort of sedation, I was battered and bruised from the attempts (Sam).

Medical paternalism is commonly identified in the literature as negative but, in some ways, this approach may absolve the patient from making difficult decisions¹⁷. The following participants' quote suggests the faith that patients' have in health professionals. .

You surrender your trust in a place (hospital) that is supposed to help (Sam).

With the emphasis today on patient centredness, however, there is a clear tension between medical paternalism and delivering patient-centered care.

Theme 4: Suggestions for improvement

Although the literature suggests clinicians may over or underestimate the patient's desire to participate in care choices, this study found that a number of the participants provided suggestions for improving their input into the procedure as a result of the difficulties they had experienced with cannulation^{18,19}.

Why don't you practice on each other, rather than oranges (Maggie).

Sit them down and let them put needles in one another (Jack).

Sometimes it's the rapport between people that is important (Lyn).

It was concerning that a number of the participants' considered 'cruelty' a component of cannulation.

There has to be a better way of giving needles or a less painful way. Teach them (nurses/doctors) because it is just cruel. It is like they just like hurting, I think, some of them (Jack).

*I'd say my worst experience was where the doctors didn't take **NO** for an answer when they've had five or six attempts I felt, was **more** than enough (Maggie).*

As the previous quotes indicate, the participants felt that clinicians should experience venous access themselves to understand what it is like for the patient. It was suggested by a number of the participants that rapport building was one way to improve the experience of cannulation and led to reducing the unpleasantness of the procedure.

Limitations

The sample size of 15 participants could be considered small for a research study, but, as this was a qualitative study, the intention was to obtain rich, valuable data, and this was achieved with a purposive sample. The objective was not to make generalisations about the patient lived experience of venous access but rather to take the opportunity to explore the experiences of one group as this may resonate with others who have had similar experiences. The study cohort consisted predominantly of cancer patients. These people had either completed treatment or were still undergoing treatment, all delivered via intravenous therapy. It is acknowledged that there may have been multiple concerns motivating their responses. However, this was considered a benefit to the depth of the data, as all the participants had multiple experiences of the phenomenon.

Utilising the dual data analysis methods also had its limitations. Leximancer qualitative computer software was initially chosen as the primary form of data analysis and, while this program identified concepts within the transcripts, many were considered irrelevant. Therefore, the decision was made to manually conduct analysis and to reflect on the data at length to identify emergent themes. The software program was useful in organising the data rather than analysing it.

Discussion and Conclusion

The participants' experience of venous access has presented a journey of discomfort, stoicism and acceptance. However, through all their shared experiences, they overwhelmingly retained respect for the clinicians. Some participants indicated that they grew through their experiences and eventually felt they were able to explain to

the clinicians what they could and could not tolerate. Although the literature trends patients to take a passive role^{16,17,18}, this study reaffirms patient's wishes to contribute to care decisions^{6,14}. Most of the participants offered suggestions for improving the experience of cannulation. This finding reinforces the need for clinicians to include the patient in decision-making processes and supports the findings of an earlier study by Tobin and Begley²⁰. The participants felt that their experience gave them knowledge and skills to better advocate for their own healthcare needs in the future because of the frequency and familiarity of dealing with repeated cannulation procedures. Mazor et al¹⁶ found that increased patient satisfaction is linked to better communication and the delivery of high quality care from a patient-centred perspective. Multiple cannulations, increased vulnerability for many of these participants, as voicing their concerns became futile and stressful. This poor communication caused a negative experience. Voice represents the person to the outside world and defines who one is as a person¹. The feeling that our concerns have been heard by clinicians is closely linked to the concept of patient-centred care.

The four implications for policy and practice listed below are intended to address current cannulation education and practice.

1. Review current cannulation clinical competency to better promote a patient-centred approach.
2. Develop a national health policy/guideline specifically for the procedure of cannulation.
3. Create a simple cannulation algorithm for clinicians which promote an interactive decision prompt for the clinician to discuss information about venous access with the patient before proceeding with insertion.
4. Produce a cannulation visual aid for patients explaining potential choices and vein selection information.

This study has provided insight into the patients' experience of undergoing cannulation, a topic that has not previously been considered within the existing literature. It has opened the way for further research into this topic. It is suggested that to build on these findings a wider cohort, with different populations for example, those with renal disease, who also experience multiple cannulations, could be recruited. Another recommendation for further research would be to develop and validate a tool that could help to guide the clinician to address the patient's individual needs and issues. Finally, a study to explore the barriers to attaining successful cannulation could identify whether clinicians face challenges and issues in performing this procedure from a more patient-centered perspective.

References

1. Donnelly, F., & Wiechula, R. 2006, The lived experience of a tracheostomy tube change: A phenomenological study. *Journal of Clinical Nursing*, vol. 15, pp. 1115-1122.
2. Weiss Adams, K. & Tolich, D. 2011, Blood Transfusion: The patient's experience. *American Journal of Nursing*, vol. 111, no. 9, pp. 24-30.
3. Williams, A. M. & Irurita, V. F. 2004, Therapeutic and non-therapeutic interpersonal interactions: the patient's perspective. *Journal of Clinical Nursing*, vol. 13, no. 7, pp. 806-815.
4. Sellman, D. 2005, Towards an understanding of nursing as a response to human vulnerability. *Nursing Philosophy*, vol. 6, pp. 2-10.
5. Erlen, J. A. 2006, Who speaks for the vulnerable? *Orthopaedic Nursing*, vol. 25, no. 2, pp. 133-136.
6. Leung, D. & Esplen, M. J. 2010, Alleviating existential distress of cancer patients: Can relational ethics guide clinicians? *European Journal of Cancer*, vol. 19, pp. 30-38.
7. Millam, D. (1996) The history of intravenous therapy. *Journal of Intravenous Therapy*, vol. 19, no. 1, pp. 5-14.
8. Wilson, J. (2006). Preventing infection associated with intravascular therapy. In *Infection Control in Clinical Practice*, 3rd edn, Baillière Tindall, London.
9. Centre for Disease Control and Prevention. Guidelines for the prevention of intravascular catheter-related infections. MMWR 2002 (51) US Department of Health and Human Services, Atlanta, Georgia. Retrieved 8 February 2013 from <http://www.cdc.gov>
10. Australian Council for Safety and Quality in Health Care. National Strategy to Address Health Care Associated Infection, July 2003. Retrieved 28 May 2008 from <http://www.safetyandquality.gov.au>
11. Webster, J., Lloyd, S., Hopkins, S., Osborne, S. & Yaxley, M. 2007, Developing a research base for intravenous peripheral cannula re-sites (DRIP trial). A randomised controlled trial of hospital in-patients. *International Journal of Nursing Studies*, vol. 44, no. 5, pp. 664-671.
12. Joanna Briggs Institute (JBI). 2008, Management of peripheral intravascular devices. *Best Practice*, vol. 12, no. 5, pp. 1-4.
13. Weiss, G. B. 1985, Paternalism modernised. *Journal of Medical Ethics*, vol. 11, pp. 184-187.
14. Upton, J., Fletcher, M., Madoc-Sutton, H., Sheikh, A., Caress, A. & Walker, S. 2011, Shared decision making or paternalism in nursing consultations? A qualitative study of primary care asthma nurses' views on sharing decisions with patients regarding inhaler device selection. *Health Expectations*, vol. 14, pp. 374-382.
15. Pollak, K. I., Alexander, S. C., Grambow, S. C. & Tulskey, J. A. [Letter]. 2010, Oncologist patient-centred communication with patients with advanced cancer: Exploring whether race or socioeconomic status matter. *Palliative Medicine*, vol. 24, no. 1, pp. 96-98.
16. Mazor, K. M., Roblin, D. W., Greene, S. M., Lemay, C. A., Firneno, C.L., Calvi, J., . . . Gallagher, T. H. 2012, Toward patient-centred cancer care: Patient perceptions of problematic events, impact and response. *Journal of Clinical Oncology*, vol. 30, pp. 1784-1790.
17. Cherny, N. I. 2012, Controversies in oncologist-patient communication: A nuanced approach to autonomy, culture and paternalism. *Oncology*, January, pp. 37-46.
18. Wilkinson, C., Khanji, M., Cotter, P.E., Dunne, O. & O'Keeffe, S. T. (2008). Preferences of acutely ill patients for participation in medical decision-making. *Quality Safety and Health Care*, vol. 17, pp. 97-100.
19. Higgins, I., Madjar, I. & Walton, J.A. 2004, Chronic pain in elderly nursing home residents: the need for nursing leadership. *Journal of Nursing Management*, vol. 12, pp. 167-173.
20. Tobin, G.A. & Begley, C. 2008, A phenomenological exploration of the lived experience of receiving a cancer diagnosis. *Cancer Nursing*, vol. 31, no. 5, pp. E31-E39.
21. Creswell, J. W. 2007, *Qualitative inquiry & research design: Choosing among five approaches* 2nd edn, Thousand Oaks: Sage Publications, California.
22. Giorgi, A. 1997, The theory, practice, and evaluation of the phenomenological method as a qualitative research procedure. *Journal of Phenomenological Psychology*, vol. 28, no. 2, pp. 235-261.
23. Husserl, E. 1970, *The crisis of European sciences and transcendental phenomenology*. David Carr, trans. Northwestern University Press, USA. (Original work published 1954).

24. Merleau-Ponty, M. 1962, *Phenomenology*. Humanities Press, London.
25. Van Manen, M. 1997, *Researching lived experience* 2nd edn, The Althouse Press, Ontario.
26. Janesick, V. J. 1998 'Stretching' exercises for qualitative researchers. Thousand Oaks,: Sage Publications, California.
27. Denzin, N. K., & Lincoln, Y. S. (eds.) 2008, *The landscape of qualitative research*. Thousand Oaks: Sage Publications , California.
28. Turner II, B. L., Kasperson, R. E, Matson, P. A., McCarthy, J. J., Corell, R.W., Christensen, L.,. . . Schiller, A. (2003). A framework for vulnerability analysis in sustainability science. *Proceedings of the National Academy of Sciences*, vol. 100, no. 14, pp. 8074-8079.
29. Smith, A. E. & Humphreys, M. S. 2006, Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. *Behaviour Research Methods*, vol. 38, no. 2, pp. 262-279.